

REMARKS

Applicant has considered the outstanding official action. It is respectfully submitted that all of the claims are directed to patentable subject matter as set forth below.

Applicant notes the Examiner's indication that claim 16 is allowed.

Claims 14 and 15 are objected to as being dependent upon a rejected base claim but are stated to be allowable if rewritten to include the limitations of the base claim and any intervening claim. Claim 14 has been rewritten in independent form. Claim 15 has been canceled and rewritten as dependent claim 17. Claim 17 includes the limitations of claims 7 (now also in base claim 14), 8 (set forth in claim 17) and prior claim 15 (included in base claim 14). Accordingly, each of claims 14 and 17 are in condition for formal allowance. Allowance of claims 14 and 17 is requested.

The outstanding rejections are as follows:

- (1) Claims 7 and 13 under 35 U.S.C. §103(a) over WO 93/21115 (Bellinger) in view of U.S. Patent No. 5,851,398 (Adey); and

(2) Claim 8 under 35 U.S.C. §103(a) over
Bellinger in view of Adey as applied to
claims 7 and 13 and further in view of U.S.
Patent No. 3,546,111 (Busch).

Claim 7 is independent and claims 8 and 13 are dependent
thereon.

Claim 7 involves a process for suppressing the
growth of green algae in an aqueous system. The process
includes recovering carbon dioxide from industrial waste
containing carbon dioxide, wherein the carbon dioxide is
produced by the burning of fossil fuels or of lime.
Thereafter, water of an aqueous system is treated with the
recovered carbon dioxide to acidify the water. Claim 8
specifies that the aqueous system is waste water and that
the acidification of the waste water with carbon dioxide
occurs before the water is emptied into a lake or river.
Claim 13 further provides that following acidification the
water is filtered to remove dead algal debris to provide
water for urban water supply.

The Examiner relies on Bellinger and Adey in
combination as basis for each rejection under 35 U.S.C.
§103. Applicant respectfully submits that one skilled in
the art looking to modify the method disclosed in Bellinger

would not look to Adey in view of the opposite intended purposes of Bellinger and Adey.

More specifically, Bellinger is directed to controlling or preventing the growth of blue-green algal in water having a pH of 7-11 through the use of carbon dioxide to increase the acidity of the water to a pH of 6 to 7 (page 4, first and second paragraphs). Bellinger does not teach the source or manner of obtaining the carbon dioxide.

In contrast, Adey teaches a method for growing algae to provide an algal turf in a trough or floway having water flowing therethrough. The function of the algal turf is to collect pollutants onto and/or into the algal cell walls when such pollutants are precipitated out of the water based on adjustment to the operating conditions of the trough or floway (column 5, lines 30-33 and 40-43). The pH range at which precipitation occurs is from about 8.5 to about 10.5 (column 7, lines 20-23). Floway operating conditions which affect the promotion of growth of the algal turf include provision of light, addition of nutrients, addition of pH adjusting materials, application of water surge, adjustment of water flow rate and water recirculation rate, and adjustment of water temperature (column 10, lines 23-29). Artificial light and adjustment of water flow rate

are the preferred ways to adjust the floway operating conditions (column 10, lines 60-64). To precipitate out pollutants, the pH of the water can be increased to a higher level, e.g., 11, which allows for precipitation of numerous pollutants (column 10, line 66 to column 11, line 14). One way disclosed to adjust the pH to maintain the level below the pH of precipitation of the pollutants to avoid excessive precipitation is to add carbon dioxide to the water (column 12, lines 52-55). This is to control the pH to a level slightly above the pH of precipitation of targeted predetermined pollutants to cause precipitation onto and/or into the algal cell wall (column 12, lines 57-63) of the cultivated algal turf. The carbon dioxide used can be derived from stack gases from a fossil-fuel burning facility.

Thus, Adey teaches growth of algae to provide algal turf and recognizes pH adjustment as one of many operating conditions therefor, as well as for use in controlling the precipitation of pollutants in the water onto or into the algal cell wall of the algal turf. Adey does not teach carbon dioxide obtained from lime. Bellinger has the opposite intended purpose of controlling or preventing algal growth and uses carbon dioxide to increase

acidity of the water containing algae to this end.

Accordingly, in view of the distinct differences between the teachings of these applied references, one skilled in the art would not look to Adey for teaching to modify Bellinger. Therefore, it is respectfully submitted that applicant's claimed process is not rendered obvious by the applied combination of Bellinger and Adey. Withdrawal of the rejection under 35 U.S.C. §103 based on Bellinger and Adey is requested.

As to the rejection of claim 8, Bellinger and Adey is further combined with Busch. As set forth above, Bellinger and Adey do not render base claim 7 obvious. Applicant submits that Busch does not make up for the shortcomings of the combination of Bellinger and Adey. Busch is relied on for teaching the additional limitation of claim 8. Busch discloses a process for the treatment of waste water, e.g., streams, by reducing the quantity of biodegradable organic material in the waste stream. The solid material present in the waste stream is passed through a filter and received in a catch basin and aerated. Thereafter, the stream is flowed to a basin for treatment with lime to precipitate dissolved inorganic material and coagulate and settle suspended solid material. The

precipitated and settled materials are then removed, dewatered and calcined to regenerate the lime and decompose the organic material. Ash material is then separated from the lime and regenerated lime recycled to the lime treatment basin as needed. Stack gases produced from the decomposition of the organic material and regeneration of the lime is used to adjust the pH of the final effluent to a neutral state (see column 2, lines 13-31).

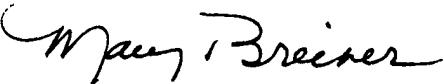
Busch does not teach or suggest recovering carbon dioxide from industrial produced waste containing carbon dioxide and treating water of an aqueous system with said carbon dioxide recovered from said industrial produced waste as claimed for suppressing the growth of green algae in an aqueous system, in particular wherein the carbon dioxide is produced by burning of fossil fuels or of lime. None of Bellinger, Adey or Busch provide any suggestion to modify the teachings thereof in order to obtain the claimed process. Accordingly, Bellinger and Adey in combination with Busch does not render the claimed process obvious within the meaning of 35 U.S.C. §103(a). Withdrawal of the §103 rejection is respectfully requested.

Reconsideration and allowance of the claims is respectfully urged.

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